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Factors influencing the likelihood of choice of Gaelic-medium Primary Education in Scotland: results from a national public survey

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Abstract

This paper investigates the factors influencing the likelihood of choice of Gaelic-medium primary education in Scotland by means of the analysis of a national survey of public attitudes conducted in 2012. Binary logistic regression is used to investigate the association of five dimensions found in previous literature to be associated with the choice of Scottish Gaelic-medium education: (i) demographic characteristics (ii) exposure to Gaelic (iii) cultural and national identities (iv) views on the future of Gaelic and (v) views on Gaelic in education. The present research found views about Gaelic in education and views on the future of Gaelic to have the greatest explanatory power in predicting likelihood of choice of Gaelic-medium education, for demographic characteristics and ‘cultural and national identities’ to have substantial explanatory power, and for exposure to Gaelic to have low explanatory power. The paper uses Baker’s (2000) three contexts for the growth of bilingual education in Wales – bilingual education as language planning, as pedagogy and as politics – as its explanatory framework, and shows that these three contexts also underpin the potential growth of Gaelic-medium education in Scotland. Potential implications for policy and for methodological approaches to studying choice of bilingual education are presented.

Key words

School choice; Gaelic-medium education; immersion education; pedagogy; language planning.

1. Introduction

Baker (2000) argues three contexts to have underpinned the rapid expansion of Welsh-medium primary schooling between the mid and late twentieth century: bilingual education as Language Planning, as Pedagogy and as Politics. The first considers the incorporation of Welsh within the education system from the perspective of the vitality of the language itself – in particular, the contribution that Welsh-medium education can make to acquisition, usage, status and corpus planning for Welsh (Welsh Language Board, 2000, Cooper 1989). The second views bilingual education as effective pedagogy – as both a culturally appropriate form of child-centred education for first-language Welsh pupils, and as an effective means of developing bilingualism, bi-literacy and an appreciation of more than one culture for all pupils. International evidence on attainment benefits of early immersion bilingual education and of the cognitive benefits of well-developed bilingualism are also cited in this regard (Genesee, 1983; Bamford & Mizokawa, 1991; Ricciardelli, 1992). The third context – bilingual education as politics – takes a broader societal view relating to public perceptions of the place of Welsh in the cultural heritage of Wales and in national identity, and to a public willingness to accept bilingual education in Welsh and English as an option in educational policy in Wales. Such contexts for growth have been reflected in research on parental rationales for the choice of Welsh-medium education (Williams, Roberts & Isaac, 1978, Bush, Atkinson & Read, 1984, Packer & Campbell, 1997, Bellin et al., 1999, Hodges, 2012, Thomas 2013), and also in research on parental rationales for the choice of Irish-medium education (Ó Riagáin & Ó Gliasáin, 1979, Maguire, 1991, Ó Donnagáin, 1995, Kavanagh, 2013, Mas-Moury Mack 2013).

The present paper investigates the extent to which Baker's three contexts also serve as contexts for the growth of Gaelic-medium education in Scotland, where the provision of early total immersion education has grown from two primary schools teaching 24 pupils in 1985 to 59 primary schools teaching 2,818 pupils in 2014 (Baker, 2011, MacLeod, 2003, Galloway, 2015). This question is investigated by means of a national survey in Scotland in 2012 (ScotCen 2013): specifically, we investigate what characteristics and views are associated with the respondent's saying that they would be likely to choose Gaelic-medium primary education for a child of their own. The aim of the paper is three-fold: (i) to better understand the factors associated with the likelihood of choice of Gaelic-medium primary education in Scotland, as compared with factors reported in previous research on enacted choice of Gaelic-medium education, (ii) to explore the extent to which Baker's (2000) three contexts for the growth of Welsh-medium education also underpin potential growth of Gaelic-medium education in Scotland, and (iii) to encourage the collection of key demographic information about respondents in future research on parental choice of early immersion bilingual education in order to better facilitate cross-national comparisons.

2. Contextual background

2.1. Policy for parental choice of Gaelic-medium education

Parental choice of Gaelic-medium primary education is facilitated by means of provisions made in the 1980 and 1981 *Education (Scotland) Acts*. The 1980 Act states that 'pupils are to be educated in accordance with the wishes of their parents', whilst the 1981 Act enables parents to request that their child attend a particular school within a local authority area. Such provisions have underpinned the growth of Gaelic-medium primary education over the last 35 years, with parental requests for new Gaelic-medium primary provision being negotiated between parents and individual local authorities according to individual local authority processes and criteria. In the 2014-15 school year, Gaelic-medium primary education was provided in 14 of the 32 Local Authority areas in Scotland, with 13 further local authorities having established cross-boundary agreements with neighbouring local authorities to facilitate parental choice of Gaelic-medium primary education under the 1980 and 1981 Acts, rather than establishing such provision in their area. Nationally, in the 2014-15 academic year, Gaelic-medium education was available in 59 of Scotland's primary schools (2.9% of the total), and 2,818 primary pupils attend Gaelic-medium provision (0.7% of the total) (Galloway, 2015).

However, the *Education (Scotland) Act*, passed by the Scottish Parliament in February 2016, marks a change in the policy context, as it establishes a *national* statutory process by which parents can request the establishing of new Gaelic-medium primary provision in their local area. Provided that there are at least five pupils in the same pre-school year group within an area whose parents wish them to be educated in Gaelic-medium education, the local authority must investigate the feasibility of providing such an education, and must provide it unless it is 'unreasonable' to do so in relation to considerations specified in the Bill (for details, see Section 10(6), *Education (Scotland) Bill 2016*). In addition, the Act requires each of the 32 Scottish education authorities to 'promote' the provision, or the potential for the provision, of Gaelic-medium primary education within their area. These measures – which command cross-party political support – are framed as 'recognising, respecting and promoting children's and parents' rights' in relation to accessing Gaelic-medium education (Scottish Government, 2015a, p.1), and are noted to reflect Scottish Government support for Gaelic-medium education as a means of promoting and maintaining the Gaelic language in

Scotland (Scottish Government, 2015b).¹ Such a policy context encourages the establishment of new Gaelic-medium primary provision where parental demand exists. The present paper investigates the characteristics and views that may underpin such demand, by means of an investigation of the factors associated with the likelihood of choice of Gaelic-medium education.

2.2. Research on parental choice of Gaelic-medium education

Six studies have been published of the reasons for choice of Gaelic-medium education in Scotland (MacNeill, 1993, Johnstone et al., 1999, Stockdale, MacGregor & Munro, 2003, O'Hanlon, McLeod & Paterson, 2010, Stephen et al., 2010, O'Hanlon, 2015). These studies, which have included 500 parents over a twenty-five year period, have identified two main rationales for choice - the first relating to linguistic and cultural heritage, and the second to education. The linguistic and cultural heritage rationale typically related to a desire that Gaelic-medium education continue a tradition of Gaelic-speaking, at the family, community, regional or national level. The education-based rationales typically related to the linguistic and cognitive outcomes associated with bilingual education, and to a perception that Gaelic-medium education is of good quality in terms of its pedagogical processes and context. Such rationales were present in all six studies. In addition, three studies identified demographic factors associated with Gaelic-medium parents. Johnstone et al. (1999, p. 2), using data from 1996-98, noted the Gaelic-medium pupils in their survey to have lower levels of free-school meal entitlement than English-medium pupils, a socio-economic finding replicated in a study by O'Hanlon, Paterson & McLeod (2010, p. 27) using data from 2006-07, which found Gaelic-medium to have a lower proportion of pupils living in the 20% most deprived areas (as classified by the Scottish Index of Multiple Deprivation). The study by Stockdale et al. (2003, p. 39) also found a relationship between parental education level and choice of Gaelic-medium education, noting that parents educated to degree level or to upper secondary school were more likely to choose Gaelic-medium education for their child. Of the previous research, the Stockdale et al. (2003) survey was the most methodologically similar to the present one, being based on a questionnaire survey and statistical modelling of the factors associated with the choice of Gaelic-medium education. In addition to parental education level, the research found four further factors to be associated with the choice of Gaelic-medium education: parental competence in Gaelic, positive parental opinion of Gaelic and of Gaelic-medium education, migration to a Gaelic-speaking area, and a child's maternal grandmother being a Gaelic-speaker.

The present research aimed to incorporate the contexts identified by Baker (2000) and the factors identified by the previous literature in the Scottish context into a module of questions designed for inclusion in the *2012 Scottish Social Attitudes Survey*. Five 'dimensions' of interest were identified based on previous research, relating to (i) demographic characteristics, (ii) exposure to Gaelic, (iii) perceptions of the place of Gaelic in cultural and national identity, (iv) views of Gaelic in education, and (v) views about the future of Gaelic. The questions included within each dimension are outlined in Section 3.1 below. Where possible, survey questions drew on previous attitudinal research regarding lesser used Celtic languages (*Scotland*: MacKinnon, 1981, 1995, Bird, 1993, Market Research UK 2003, Stockdale et al., 2003, Scottish Government, 2011; *Ireland*: Ó Riagáin,

¹ The importance of Gaelic education to the maintenance of Gaelic in Scotland is underlined by 2011 census figures, which show levels of inter-generational transmission of Gaelic to be low. Only 0.4% of 0-2 year olds were reported to have any Gaelic language skills, compared to a national incidence across age groups of 1.7% (NRS 2015, p.11).

1997, 2007; *Wales*: Welsh Language Board, 1995, Cole & Williams, 2004). The survey questions were additionally shaped by the comments of an expert advisory panel of academics and policy makers from Scotland, Wales and Ireland, and by the feedback of 51 adults involved in a pilot study.

This paper investigates the effects of these five dimensions and their associated variables on the likelihood of choice of Gaelic-medium education. The ‘likelihood of choice’ was investigated by means of a survey question (detailed in Table 1) that asked respondents how likely they would be to send a child of their own to Gaelic-medium education, if Gaelic-medium education was available in their area. The question aimed to index ‘behavioural intentions’ (Ajzen, 1991, p. 181), which, within the theory of planned behaviour, is the respondent’s intention in relation to a certain behaviour, taking into consideration their attitudes towards it, social norms, and the extent to which the respondent feels that they might be able to enact such a behaviour (Ajzen, 1991). The paper investigates two key research questions:

- (i) Within each of the dimensions identified in previous research as being important to the choice of Gaelic-medium education, which variables are statistically significantly associated with likelihood of choice of Gaelic-medium education?
- (ii) When the impact of all five dimensions is considered together, which dimensions have the largest influence on the choice of Gaelic-medium education, and, within this, which individual variables retain statistical significance?

The discussion will consider the findings in relation to previous literature, and in relation to Baker’s (2000) framework of bilingual education as language planning, as pedagogy and as politics, in order to explore the extent to which these three contexts can also be seen to underpin potential growth of Gaelic-medium education in Scotland.

3. Data and methods

3.1. Data

The data were collected as part of the Scottish Social Attitudes Survey of 2012 (ScotCen Social Research, 2013a). The survey aimed to obtain a representative sample of adults aged 18 or over who were living in Scotland in the summer of 2012. It used a multi-stage clustered probability design. The first stage involved selecting 87 postcode sectors. In urban areas, these were selected with probability proportional to the number of addresses, and in rural areas they were selected with probability proportional to twice the number of addresses. The post-code sectors were stratified according to the Scottish Government urban-rural classification, by region and by percentage of household heads in non-manual occupations (Socio-Economic Groups 1-6 and 13, taken from the 2001 Census). The second stage of sampling involved the random selection of 28 addresses from each postcode sector. The third stage involved interviewers randomly selecting one adult to interview at each address. In total, 1,229 interviews were conducted, a response rate of 54%. The achieved sample was weighted to match the age-and-sex structure of the population, and also to correct for over-sampling of rural areas, differential selection probabilities of respondents by household-size, and patterns of non-response (for more details, see ScotCen Social Research, 2013b). The representativeness of the sample can be assessed in relation to other, larger, surveys. For example, the weighted sample had a distribution of highest educational attainment that was close to that found by the much larger Scottish Household Survey of 2011, had levels of party-political support representative of that in the May 2012 elections to Scottish local

councils, and had a proportion of Gaelic speakers of 1.1%, the same as the 1.1% reported in the 2011 Census.

The questionnaire in the survey contained 40 questions relating to Gaelic, in addition to questions on many other topics (for details see ScotCen Social Research, 2013b). It also contained questions on general demographic information, such as age, sex and occupation (from which social-class measures are derived), and on personal national identity. The questionnaire was administered by face-to-face interviewing within the respondent's home, along with a laptop-based self-completion section for questions that were particularly sensitive. Respondents were offered the option of completing the module of questions on Gaelic in Gaelic (by means of a pre-recorded version of the questions on a laptop): none chose to do so.

The present paper uses the information in the survey to explore the factors associated with the likelihood of sending a child to Gaelic-medium primary education. The explanatory variables included in the analysis (detailed below) represent the five dimensions which are known from previous research to be associated with the choice of Gaelic-medium education. Respondents with missing data on any of the explanatory variables or on the dependent variable were omitted, leaving data from 963 respondents (78% of the full sample). Descriptive statistics presented in this section are weighted percentage distributions based on this usable sample.

Dependent variable:

Table 1 shows the question asked of respondents on the likelihood of choice of Gaelic-medium primary education, and the pattern of response across the 963 respondents.

Table 1

Likelihood of choice of Gaelic-medium primary education for own child

	Percentage
Very likely	11
Fairly likely	17
Not very likely	28
Not at all likely	44
Sample size	963

Percentages are weighted; sample size is unweighted.

*The question asked was: 'In some parts of Scotland, parents can choose to send their child to a primary school where most of the lessons are in Gaelic. For example, children would be taught maths or history in Gaelic rather than in English. If there was a primary school in **this** area where most of the lessons were in Gaelic, how likely would you be to send a child of your own to this school instead of a school where all the lessons are in English?'. The response options are those shown above. Respondents were encouraged by interviewers to provide an answer to this question even if they were not parents, or if their own children were grown up. In such cases, they were asked to think about how they would feel about this educational option if they did have primary-school-aged children.*

This variable constitutes the dependent variable in the logistic regression analysis described in Section 3.2. For the analysis, the variable was made dichotomous – with one category consisting of the 28% of respondents who were ‘very’ or ‘fairly’ likely to choose Gaelic-medium education), and the other consisting of the 72% of respondents who were ‘not very’ or ‘not at all’ likely to do so.²

Explanatory variables:

The explanatory variables included in the analysis related to respondents’ (i) demographic characteristics (ii) exposure to Gaelic (iii) cultural and national identities (iv) views on the future of Gaelic and (v) views on Gaelic in education. Variables relating to each of these five dimensions were selected for inclusion in the statistical models by means of a two-stage process. Firstly, all variables relating to the dimensions of interest available within the Scottish Social Attitudes Survey were listed and the relationship between the potential explanatory variables and the dependent variable was individually tested using chi-squared tests for categorical variables, and t-tests for continuous variables. Only variables which had a statistically significant relationship with the dependent variable at the 10% significance level were considered for entry into the models. The potential explanatory variables within each dimension were then explored (using correlation and logistic regression) to ensure that they were measuring different phenomena. In cases in which two or more variables were shown to be measuring similar phenomena, an indicator variable was chosen for the modeling, or a scale conducted from several variables. The variables selected for inclusion in the analysis are described below. Appendix 1 (available online at the journal’s repository) contains a summary of the additional variables that were considered for inclusion.

(i) Demographic factors

Three variables were included in the modelling:

- Age – with categories: 18-24 (12%), 25-34 (18%), 35-44 (17%), 45-54 (18%), 55-64 (16%), 65+ (19%).
- Highest Educational Qualification - with categories: tertiary (38%), upper secondary (22%), middle secondary (24%), none (16%).
- Level of social and economic deprivation of local area (with five equal-sized parts: from the 20% least deprived areas in Scotland to the 20% most deprived areas in Scotland), based on the Scottish Index of Multiple Deprivation (Scottish Government, 2009). (1= most deprived (20%), 2 (21%), 3 (19%), 4 (18%), 5 = least deprived (22%).³

Neither sex nor whether the respondent had children of school age were found to be associated with likelihood of choice of Gaelic-medium education.

(ii) Exposure to Gaelic

Three variables were included in the modelling:

² The analysis presented in Section 4 below was also conducted using the dichotomy ‘very likely’ to choose Gaelic-medium education and ‘other responses’ (consisting of the categories ‘fairly likely’, ‘not very likely’ and ‘not at all likely’). The pattern of results was the same, with no coefficient that was significant in one analysis changing direction (from negative to positive, or vice versa) in the other analysis. The analysis based on the ‘very likely’ and ‘other responses’ dichotomy is available from the authors on request.

³ The Scottish Index of Multiple Deprivation uses 37 indicators in the seven domains of Current income, Employment, Health, Education skills and training, Geographic access to services, Housing, and Crime to measure the level of deprivation across Scotland by data-zone (a small geographic area with 500-1000 residents).

- Competence in understanding Gaelic - with response categories: none (72.7%), the odd word (24.1%), a few simple sentences (2.0%), parts of conversations (0.3%), most conversations (0.5%) and all conversations (0.4%). The latter four categories were grouped into a single category 'more than the odd word'.
- Exposure to Gaelic in the last 12 months - a derived variable which represents an average of respondents' exposure to Gaelic in five contexts - (i) on TV/Radio, (ii) in the street/public place, (iii) in the home, (iv) on road or public signs, and (v) through singing - over the last 12 months. Respondents were asked to report their exposure to Gaelic in each context on a five-point scale, from 1 = never, to 5 = more than once a week. The mean of the five items was taken to form a scale of exposure to Gaelic in the last 12 months, with high values indicating frequent exposure. Distribution: 1-1.99 (66%), 2-2.99 (29%), 3-3.99 (4%), 4-4.99 (1%).
- Exposure to Gaelic in childhood (scale recording respondents' reported exposure to Gaelic in childhood where 1 = no exposure and 6 = daily exposure). Distribution: 1 = no exposure (83%), 2 = less than once a month (6%), 3 = more than once a month (3%), 4 = about once per week (3%), 5 = more than once per week (2%), 6 = every day (3%).

(iii) National and cultural identity

Four variables were included in the modelling:

- National identity - with response categories: Scottish not British (23%), more Scottish than British (33%), equally Scottish and British (29%), more British than Scottish (6%), British not Scottish (4%), Other (5%).
- Perceived importance of Gaelic to respondent's own cultural heritage - scale with 1 = not at all important (35%), 2 = not very important (34%), 3 = can't choose (5%), 4 = fairly important (18%) and 5 = very important (8%).
- Perceived importance of Gaelic to the cultural heritage of the Highlands and Islands.⁴ Scale as above, 1 = not at all important (25%), 2 (7%), 3 (3%), 4 (37%), 5 = very important (51%).
- Perceived importance of Gaelic to the cultural heritage of Scotland. Scale as above, 1 = not at all important (4%), 2 (16%), 3 (3%), 4 (45%), 5 = very important (32%).

(iv) Views about the future of Gaelic

Four variables were included in the modelling:

- Respondents' views on encouraging the use of Gaelic in Scotland - with categories: should not be encouraged at all (11%), should be encouraged in areas where it is already spoken (55%), should be encouraged everywhere in Scotland (34%).
- Respondents' expectations regarding the number of Gaelic-speakers in Scotland in 50 years' time - with categories: fewer people than now (55%), about the same number of people as now (31%), more people than now (14%).
- Respondents' preferences regarding how many Gaelic-speakers there will be in Scotland in 50 years' time - with categories: fewer people than now (12%), about the same number as now (41%), more people than now (47%).

⁴ The Highlands and Islands are the areas of Scotland with the highest density of Gaelic-speakers. All civil parishes (small areas of Scotland which originally represented a church parish) with 5% or more of the population reporting themselves to be Gaelic speakers exist within the Highlands and Islands (in the North-West of Scotland) (NRS, 2015, p.31).

- Respondents' views on the level of public spending on Gaelic, with respondents being told that current annual expenditure was about £24m, or £4.80 for each person in Scotland. Categories: too much money (33%), about the right amount of money (47%), too little money (20%).

(v) *Gaelic in education*

Six variables were included in the modelling, with two variables indexing each of the three contexts within Baker's (2000) framework.⁵

(i) Gaelic-medium education as pedagogy:

- *whether Gaelic-medium educated pupils 'do better at school' than English-medium educated pupils*; scale with 1=strongly disagree and 5= strongly agree). Response categories: 1 = strongly disagree (7%), 2 = disagree (27%), 3 = neither agree nor disagree/can't choose (57%), 4 = agree (8%), 5 = strongly agree (1%).
- *whether Gaelic-medium education is 'a bad thing because it separates children taught in Gaelic from children taught in English'*. Same response categories as above, 1 = strongly disagree (8%), 2 (47%), 3 (23%), 4 (19%), 5 = strongly agree (3%).

(ii) the value of learning Gaelic (which may be seen as relating to the public political debate about the importance of Gaelic in Scotland):

- *whether learning 'languages such as French is more useful than learning Gaelic'*. Same response categories as above, 1 = strongly disagree (4%), 2 (11%), 3 (28%), 4 (36%), 5 = strongly agree (21%).
- *whether 'learning the Gaelic language is pointless in the 21st Century'*. Same response categories, 1 = strongly disagree (12%), 2 (34%), 3 (32%), 4 (16%), 5 (6%).

(iii) the role of schooling in language planning for the Gaelic language:

- *whether 'teaching some children in Gaelic is essential to the future use of Gaelic'*. Same response categories as above, 1 = strongly disagree (2%), 2 (11%), 3 (16%), 4 (56%), 5 = strongly agree (15%); and
- *who, if anyone, should have the main responsibility for whether Gaelic is used in Scotland* - response categories: parents who speak Gaelic (36%), local communities (19%), nursery schools and schools (17.6%), the Government (22%), churches (0.4%), the media (1%), other (2%), none of these (2%). Initial exploration of responses found the parents and communities categories to be negatively associated with the likelihood of choice of Gaelic-medium education and for the schools and Government categories to be positively associated with such a likelihood. For the purposes of analysis, the response categories were thus grouped into: 'parents or communities', 'schools or Government' and 'other'.

3.2 Methods

The main method of analysis was binary logistic regression, which aimed to explain the statistical effect of the dimensions and variables outlined in Section 3.1 on the likelihood of choosing Gaelic-medium education. The analysis presents the statistical effects of variables

⁵ The relationship of variables within Dimensions 1-4 to Baker's (2000) three contexts – of education as pedagogy, language planning, and politics – will be discussed in Section 5.

within each individual dimension (Section 4.1) to provide evidence relating to Research Question 1, before considering the statistical effects of variables when all five dimensions are entered in a single statistical model (Section 4.2), to address Research Question 2. We also report summary measures which assess how well the models predict the dependent variable. The tables show the Type II deviance associated with each independent variable, which is defined to be the unique contribution which that variable makes to explaining the dependent variable, conditional on the other variables in the model (Fox and Weisberg, 2011, pp. 238-9). Type-II tests of deviance are approximately equivalent to the Wald test of statistical significance for each variable. All modelling was done in the statistical computing environment R and did not use weights. In the tables which follow, categorical explanatory variables measure the statistical effect on the dependent variable by comparison with the specified reference category. For continuous variables, the statistical effect on the dependent variable is measured in relation to a one-unit increase in the value of the explanatory variable.

4. Results:

4.1. Research Question 1: when each dimension is modelled individually, which variables are associated with the likelihood of choice of Gaelic-medium education?

Dimension 1: Demographic factors

Table 2 shows the relationship between the three demographic variables from Dimension 1 and the dependent variable of likelihood of choice of Gaelic-medium education. The deviance values at the foot of the table show that the strongest demographic predictor is the level of social deprivation of the local area in which the respondent lives (Type II deviance: 22.7); the regression coefficients in the upper part show that respondents living in any of the three most deprived fifths are more likely, at the 1% significance level, to place a child in Gaelic-medium education than those living in the 20% least deprived areas of Scotland. The second strongest demographic predictor is a respondent's education level (deviance = 9.4). Compared with those educated to degree level, those with no qualifications are more likely (at the 1% significance level) to express a likelihood to choose Gaelic-medium education for their child. Respondents' age does not make an additional independent contribution to the likelihood of choosing Gaelic-medium education within this model (Type II deviance p-value = 0.67).

Table 2

Demographic factors and the likelihood of choice of Gaelic-medium education [GME]
(negative coefficient meaning lower likelihood of choice of GME than in reference categories)

Explanatory variable (and reference category)			
		Coeff.	s.e.
Constant		-1.798	.358
Age (ref. 18-24)	25-34	.351	.347
	35-44	.220	.336
	45-54	.066	.338
	55-64	.260	.335
	65+	-.023	.339
	Highers/A-Levels	.142	.206

Highest Educational Qualification (ref. 'Tertiary Education')	(Upper secondary school qualifications)		
	Standard Grades/GCSEs (Middle secondary school qualifications)	.133	.202
	None	.668**	.223
Scottish Index of Multiple Deprivation (ref. 20% least deprived areas in Scotland – group 5)	Group 4	.102	.259
	Group 3	.718**	.244
	Group 2	.701**	.244
	Group 1 (20% most deprived areas)	.942**	.259
Residual deviance		1099.4	
Number of residual degrees of freedom		950	
	Type II deviance	df	p
Age	3.20	5	0.67
Highest Educational Qualification	9.41	3	0.02*
Scottish Index of Multiple Deprivation	22.7	4	0.00**

Key for statistical significance levels: ** $p < 0.01$; * $0.01 < p < 0.05$; (*) $0.05 < p < 0.10$. Sample size = 963.

The entries are regression coefficients ('Coeff.') and their standard errors ('s.e.') in a binary logistic regression of the dichotomous variable recording likelihood or not of sending a child to Gaelic-medium education (for details, see Section 3.1). The explanatory variables are all categorical, and the coefficients show deviations from the reference category indicated.

Dimension 2: Exposure to Gaelic

Table 3 shows the relationship between the three exposure variables from Dimension 2 and the dependent variable. The deviance values show competence in Gaelic to be the strongest predictor of the likelihood of choice (deviance = 19.4), with (from the upper part of the table) respondents who understood some Gaelic being more likely to consider Gaelic-medium education than those who did not understand any Gaelic. This was true at the 5% significance level for those who understood the odd word of Gaelic, and at the 1% significance level for those who understood at least a few simple sentences. The second strongest demographic predictor is 'exposure to Gaelic in childhood' (deviance = 4.60). The more frequently respondents were exposed to Gaelic in childhood, the more likely they are (at the 5% significance level) to choose Gaelic-medium education for a child. However, the variable recording the frequency of respondents' recent exposure to Gaelic (in the year prior to interview) was found to have no independent effect on the dependent variable over and above the competence and exposure in childhood variables (Type II deviance p-value = 0.10).

Table 3
Exposure factors and the likelihood of choice of Gaelic-medium education
(negative coefficient meaning lower likelihood of choice of GME than in reference categories
for categorical variables, and lower likelihood with each one-unit increase in the value of the explanatory variable for
continuous variables)

<i>Explanatory variable</i>			
		Coeff.	s.e.
Constant		-1.726	.224
Competence in understanding Gaelic (ref. None)	The odd word	.444*	.176
	More than the odd word (from 'a few simple sentences' to 'all conversations')	1.728**	.429
Exposure to Gaelic in the last 12 months (scale of exposure where 1=no exposure and 5 = regular exposure)		.199	.122
Exposure to Gaelic in childhood (scale of exposure where 1=no exposure and 6=daily exposure)		.131*	.061
Residual deviance		1079.8	
Number of residual degrees of freedom		958	
	Type II deviance	df	p
Competence in understanding Gaelic	19.4	2	0.00**
Exposure to Gaelic in the last 12 months	2.64	1	0.10
Exposure to Gaelic in childhood	4.60	1	0.03*

Key for statistical significance levels: ** $p < 0.01$; * $0.01 < p < 0.05$; (*) $0.05 < p < 0.10$. Sample size = 963.

The entries are regression coefficients ('Coeff.') and their standard errors ('s.e.') in a binary logistic regression of the dichotomous variable recording likelihood or not of sending a child to Gaelic-medium education (for details, see Section 3.1). The explanatory variables 'Scale of Exposure to Gaelic' and 'Gaelic in childhood' are continuous. The variable representing respondents' Gaelic competence is categorical, and the coefficients show deviations from the reference category of no Gaelic competence.

Dimension 3: National and cultural identity

Table 4 shows all four identity variables from Dimension 3 to make a statistically significant contribution to explaining the dependent variable. The deviance values show the perceived importance of Gaelic to the respondent's own cultural heritage to be the strongest predictor of likelihood of choosing Gaelic-medium education for a child (deviance=50.8), with the greater the importance a respondent accords to Gaelic in this domain, the greater the likelihood of choice (at the 1% significance level). The same pattern is evident in relation to the second strongest predictor: respondents' perception of the importance of Gaelic to Scotland's cultural heritage (deviance = 22.4, association significant at the 1% level). The variable with the third

strongest explanatory power is the respondent's national identity (deviance = 21.2). The table shows that, compared to the reference category of 'Scottish not British', respondents who felt equally Scottish and British were statistically significantly less likely, at the 1% significance level, to express a likelihood to choose Gaelic-medium education. This was also the case, at the 10% significance level, for those who felt 'more British than Scottish'. The fourth explanatory variable in the model – the importance of Gaelic to the cultural heritage of the Highlands and Islands – makes a unique contribution to explaining the likelihood of choice of Gaelic-medium education, but has much lower explanatory power than the other identity variables (deviance = 6.72). The greater the perceived importance of Gaelic in the cultural heritage of the Highlands and Islands, the greater the likelihood of choice, at the 5% significance level.

Table 4
Identity factors and the likelihood of choice of Gaelic-medium education
(negative coefficient meaning lower likelihood of choice of GME than in reference categories
for categorical variables, and lower likelihood with each one-unit increase in the value of the explanatory variable for
continuous variables)

<i>Explanatory variable</i>			
		Coeff.	s.e.
Constant		-5.702	.650
National identity (ref. Scottish not British)	More Scottish than British	-.177	.214
	Equally Scottish and British	-.891**	.234
	More British than Scottish	-.690(*)	.408
	British not Scottish	-.497	.453
	Other	.292	.412
Importance of Gaelic to one's own cultural heritage (1=not at all important, 5=very important)		.450**	.064
Importance of Gaelic to cultural heritage of Highlands and Islands (1=not at all important, 5=very important)		.372*	.148
Importance of Gaelic to cultural heritage of Scotland (1=not at all important, 5=very important)		.559**	.127
Residual deviance		899.2	
Number of residual degrees of freedom		954	
	Type II deviance	df	p
National identity	21.2	5	0.00**
Importance of Gaelic to own cultural heritage	50.8	1	0.00**
Importance of Gaelic to cultural heritage of Highlands and Islands	6.72	1	0.01**

Importance of Gaelic to cultural heritage of Scotland	22.4	1	0.00**
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Key for statistical significance levels: ** $p < 0.01$; * $0.01 < p < 0.05$; (*) $0.05 < p < 0.10$. Sample size = 963.

The entries are regression coefficients ('Coeff.') and their standard errors ('s.e.') in a binary logistic regression of the dichotomous variable recording likelihood or not of sending a child to Gaelic-medium education (for details, see Section 3.1). The explanatory variables 'Importance of Gaelic to (i) one's own cultural heritage (ii) the cultural heritage of the Highlands and Islands (iii) the cultural heritage of Scotland are continuous and measured on a scale from 1=not at all important to 5= very important. The variable representing respondents' national identity competence is categorical, and the coefficients show deviations from the reference category of 'Scottish not British'.

Dimension 4: Views about the future of Gaelic

Table 5 shows the relationship between the four variables from Dimension 4 and the dependent variable. The deviance values show respondents' hopes for the number of Gaelic speakers in 50 years' time to be the strongest predictor of the likelihood of choice of Gaelic-medium education (deviance = 53.1). Compared to those who hope that there will be fewer speakers in 50 years' time than at present, those who hope that there will be more Gaelic speakers are more likely to choose Gaelic-medium education for their child (at the 1% significance level), and those who hope there will be about the same number of Gaelic speakers are more likely to do so at the 5% level. The second strongest predictor of choice relates to respondents' views on encouraging the use of Gaelic in Scotland (deviance = 43.6). Those who believe that the use of Gaelic should be encouraged in areas where it is already spoken are less likely (at the 1% significance level) to choose Gaelic-medium education for their child than those who believe Gaelic should not be encouraged at all. This seemingly surprising finding is explained by an interaction effect (not shown in the table) with the variable that asks for respondents' views on who should have main responsibility for the future use of Gaelic in Scotland (variable 6 within the 'Gaelic in education' dimension, Section 3.1).⁶ The interaction effect showed that people who believe that the use of Gaelic should be encouraged only in areas in which it is already spoken typically perceive such work to be the responsibility of local communities and Gaelic-speakers, rather than being the responsibility of schools, the government or other agencies. Such respondents seem to be attributing responsibility for the future of Gaelic to its speakers – not to schools, not to government, and not to themselves in the sense of placing a child in Gaelic-medium education. The variable with the third strongest explanatory power within the 'future of Gaelic' dimension is the respondent's view on the current levels of public spending on Gaelic (deviance = 18.8). Compared to those who feel that too much money is being spent on Gaelic, those who believe that about the right amount, or too little, is being spent, are more likely (at the 1% significance level) to express an interest in Gaelic-medium education. The explanatory power of the fourth variable, expectations of the number of Gaelic speakers in 50 years' time, is smaller (deviance = 8.74). Compared to those who expect there to be fewer Gaelic speakers in 50 years' time, those who expect there to be more Gaelic speakers are more likely to choose Gaelic-medium education (at the 1% significance level).

⁶ That is to say, inserting the interactive effect removed the statistical significance associated with the original variable.

Table 5
Gaelic in the future factors and the likelihood of choice of Gaelic-medium education
(negative coefficient meaning lower likelihood of choice of GME than in reference categories)

<i>Explanatory variable (and reference category)</i>			
		Coeff.	s.e.
Constant		-3.946	.735
Views on encouraging the use of Gaelic in Scotland (ref. 'should not be encouraged at all')	Should be encouraged in areas where it is already spoken	-.890**	.328
	Should be encouraged everywhere in Scotland	.338	.326
Expectations for the number of Gaelic speakers in 50 years' time (ref. 'fewer people than now')	About the same number of people as now	.210	.201
	More people than now	.673**	.228
Hopes for the number of Gaelic speakers in 50 years' time (ref. 'fewer people than now')	About the same number of people as now	1.691*	.760
	More people than now	2.934**	.753
Views on current levels of public spending on Gaelic (ref. 'too much money')	About the right amount of money	.864**	.243
	Too little money	1.129**	.278
Residual deviance		842.4	
Number of residual degrees of freedom		954	
	Type II deviance	df	p
Views on encouraging the use of Gaelic in Scotland	43.6	2	0.00**
Expectations for the number of Gaelic speakers in 50 years' time	8.74	2	0.01**
Hopes for the number of Gaelic speakers in 50 years' time	53.1	2	0.00**
Views on current levels of public spending on Gaelic	18.8	2	0.00**

Key for statistical significance levels: ** $p < 0.01$; * $0.01 < p < 0.05$; (.) $0.05 < p < 0.10$. Sample size = 963.

The entries are regression coefficients ('Coeff.') and their standard errors ('s.e.') in a binary logistic regression of the dichotomous variable recording likelihood or not of sending a child to Gaelic-medium education (for details, see Section 3.1). The explanatory variables are all categorical, and the coefficients show deviations from the reference category indicated.

Dimension 5: Views on Gaelic in education

Table 6 shows the relationship between the six variables from Dimension 5 and the dependent variable. The deviance values in the lower part of the table show that all six variables make a

unique contribution to explaining the likelihood of choice of Gaelic-medium education, but that they differ in their explanatory power. For the purposes of parsimony, the results of table 6 will be presented in the variable pairs of Gaelic as pedagogy (variables 1 and 2), views about the usefulness of learning Gaelic (variables 3 and 4) and views about education in language planning for Gaelic (variables 5 and 6). Separate analyses showed the deviance value of each *pair* of variables, that is to say, the unique contribution of the pair of variables to the model, over and above the explanatory power of the other four variables, to be 50.2, 64.7 and 53.5 for the pedagogy, public politics and language planning variable pairs respectively.

Respondents' views of the value of learning Gaelic ('education as public politics') were the strongest predictors of the likelihood of choice of Gaelic-medium education within this model (deviance = 64.7). The more valuable a respondent felt Gaelic was (indexed by extent of disagreement with the statements 'learning languages such as French is more useful than learning Gaelic' or 'learning the Gaelic language is pointless in the 21st Century'), the greater the likelihood of choosing Gaelic-medium education (each variable was significant at the 1% significance level). Respondents' views of the role of Gaelic education in Gaelic language maintenance also made a significant contribution to the explanatory power of the model (deviance = 53.5). Agreement with the proposition that Gaelic-medium education is essential to the future use of Gaelic was positively associated with likelihood of choice at the 1% significance level, as was a belief that institutions (schools or government) rather than individuals (Gaelic-speaking parents or communities) should have the main responsibility for the continued use of Gaelic in Scotland.⁷ In terms of Gaelic-medium education as pedagogy (deviance = 50.2), there was a positive association, at the 1% significance level, between agreement with the proposition that Gaelic-medium pupils do better at school than English-medium pupils and likelihood to choose Gaelic-medium education, and a negative association between likelihood of choice and the extent to which respondents felt Gaelic-medium education to be a bad thing, as it separates Gaelic-medium and English-medium pupils.

Table 6

Gaelic in education factors and the likelihood of choice of Gaelic-medium education

(negative coefficient meaning lower likelihood of choice of GME than in reference categories for categorical variables, and lower likelihood with each one-unit increase in the value of the explanatory variable for continuous variables)

<i>Explanatory variable</i>		
	Coeff.	s.e.
Constant	-2.010	.761
Gaelic-medium pupils do better at school than English-medium pupils (1=strongly disagree, 5=strongly agree)	.739**	.133
Teaching children in Gaelic is bad because it separates them from children taught in English (1=strongly disagree, 5=strongly agree)	-.395**	.100
Learning languages such as French is more useful than learning Gaelic (1=strongly disagree, 5=strongly agree)	-.456**	.086

⁷ The 'other' category within this variable is small (53 respondents) and thus the evidence relating to it is not reliable.

Learning the Gaelic language is pointless in the 21 st Century (1=strongly disagree, 5=strongly agree)		-.452**	.102
Teaching some children in Gaelic is essential to the future use of Gaelic (1=strongly disagree, 5=strongly agree)		.575**	.125
View on who should have the main responsibility for whether Gaelic is used in Scotland (ref. 'Gaelic-speaking parents or communities')	Schools or government	.876**	.176
	Other	.934*	.418
Residual deviance		840.9	
Number of residual degrees of freedom		955	
	Type II deviance	df	p
Gaelic-medium pupils do better at school than English-medium pupils	34.5	1	0.00**
Teaching children in Gaelic is bad because it separates them from children taught in English	16.6	1	0.00**
Learning languages such as French is more useful than learning Gaelic	29.3	1	0.00**
Learning the Gaelic language is pointless in the 21 st Century	20.7	1	0.00**
Teaching some children in Gaelic is essential to the future use of Gaelic	23.3	1	0.00**
View on who should have the main responsibility for whether Gaelic is used in Scotland	26.7	2	0.00**

Key for statistical significance levels: ** $p < 0.01$; * $0.01 < p < 0.05$; (*) $0.05 < p < 0.10$. Sample size = 963.

The entries are regression coefficients ('Coeff.') and their standard errors ('s.e.') in a binary logistic regression of the dichotomous variable recording likelihood or not of sending a child to Gaelic-medium education (for details, see Section 3.1). The first five explanatory variables in the table are continuous and measured on a scale from 1=strongly disagree to 5=strongly agree. The variable representing respondents' view about who should have the main responsibility for whether Gaelic is used in Scotland is categorical, and the coefficients show deviations from the combined reference category of 'parents' and 'communities'. The 'other' category includes people who felt that individuals, the media, the church or that all people and institutions were responsible for whether Gaelic is used in Scotland.

4.2. Research Question 2: when all five dimensions are modelled together, which dimensions have the strongest independent statistical influence on the likelihood of choice of Gaelic-medium education, and which variables retain statistical significance?

Tables 7 and 8 show the relationship between all the explanatory variables (Dimensions 1 to 5) and the dependent variable. The deviance values in Table 8 are presented by ‘dimension’ (as detailed in Section 3.1), since one of our interests in this final model is to gauge the relative importance of the different *kinds* of explanatory variable represented by each dimension in predicting the likelihood of choice of Gaelic-medium education. Table 8 shows that although each dimension makes a unique contribution to explaining the likelihood of choice (Dimensions 1, 3, 4 and 5 at the 1% significance level, and Dimension 2 at the 10% level), ‘attitudes to Gaelic in education’ (dimension 5, deviance: 50.6) and ‘attitudes to the future of Gaelic’ (dimension 4, deviance: 48.0) are the strongest predictors. ‘Demographic characteristics’ and ‘cultural and national identity’ have substantial explanatory power in predicting the dependent variable (dimension 1, deviance = 34.0 and dimension 3, deviance = 26.2 respectively), whilst ‘exposure to Gaelic’ has low explanatory power (dimension 2, deviance = 8.92).

Table 9 presents the deviance values of each explanatory variable, and shows that eleven of the eighteen variables that made statistically significant individual contributions to predicting the dependent variable when the dimensions were modelled individually (Tables 2-6) continue to do so when all five dimensions are modelled together. Five variables within ‘attitudes to Gaelic in education’ retain statistical significance in the final model, as do two within ‘attitudes to the future of Gaelic’, two within ‘cultural and national identity’ and one within each of ‘demographic characteristics’ and ‘exposure to Gaelic.’ The patterns of the associations of these variables replicate those detailed in Section 4.1 above, and thus the present discussion will focus on the levels of statistical significance of the co-efficients within these variables in relation to the likelihood of choice of Gaelic-medium education (Table 7).

Within ‘attitudes to Gaelic in education’, the two pedagogy variables (‘Gaelic-medium pupils do better at school than English-medium pupils’ and ‘teaching some children in Gaelic is a bad thing because it separates them from children taught in English’) retained their 1% statistical significance in the final model, as did the education as language planning variable which asked respondents who should have the principal responsibility for whether Gaelic is used in Scotland. The education as language planning variable which recorded respondents’ perceptions of the importance of teaching some children in Gaelic to the future use of Gaelic, retained significance in the final model, but this reduced from 1% to 5%. With regard to education as public politics, disagreement with the statement that learning languages such as French is more useful than learning Gaelic retained an association with the likelihood of choice, but at a reduced significance level (10% rather than 1%).

Within the ‘future of Gaelic’ dimension, the variables ‘hopes for the number of Gaelic speakers in 50 years’ time’ and ‘views of encouraging the use of Gaelic in Scotland’ continue to have a statistical association with the dependent variable in the final model, but at reduced levels of significance as compared to the model which contained only this dimension (Table 5). In the full model (Table 7), there is now only a statistical association between those who wish there to be *more* people speaking Gaelic in 50 years’ time and likelihood of choice of Gaelic-medium education, with this association now at the 5% significance level. The negative association with likelihood of choice of the belief that Gaelic should be encouraged only in areas in which it is already spoken (see section 4.1) is now significant at the 10%, rather than the 1% level.

Within ‘cultural and national identity’, the variable recording the importance of Gaelic to the respondent’s cultural heritage retained its positive association with the dependent variable (but now at the 5% significance level), whilst, for national identity, the final model replicated the finding that those who identify as Scottish not British are more likely to choose Gaelic-medium education than those who identify as ‘equally Scottish and British’, but the significance of the association has reduced to 5% in the final model. In relation to ‘demographic characteristics’, the final model shows an increase in the statistical association of the ‘highest educational qualification’ variable with likelihood of choice of Gaelic-medium education. In addition to the replication of the finding that those with no qualifications are statistically significantly more likely to choose Gaelic-medium education than those with tertiary level qualifications (at the 1% significance level), the final model suggests that those with middle secondary school or upper secondary school qualifications are also more likely to so (at the 10% and 5% significance levels respectively). This finding is explored in the Discussion section. Finally, within the ‘exposure to Gaelic’ dimension, competence in Gaelic remains significantly positively associated with the likelihood of choice of Gaelic-medium education in the final model, but now only in relation to those who understand at least a few simple sentences, and now at the 5% significance level. The significance of 11 individual variables across the five dimensions in the final model suggests that multiple rationales pertain to the choice of Gaelic-medium education, a finding that concords with all previous research cited in relation to the Scottish, Welsh and Irish contexts in Section 1.

Table 7
Factors in the likelihood of choice of Gaelic-medium education

(negative coefficient meaning lower likelihood of choice of GME than in reference categories for categorical variables, and lower likelihood with each one-unit increase in the value of the explanatory variable for continuous variables)

<i>Dimension</i>	<i>Explanatory variable</i>		Coeff.	s.e.
	Constant		-7.078	1.525
1: Demographic factors	Age (ref. 18-24)	25-34	.248	.458
		35-44	.088	.437
		45-54	-.103	.441
		55-64	.647	.449
		65+	.455	.455
	Highest Educational Qualification (ref. ‘Tertiary Education’)	Highers/A-Levels (Upper secondary school qualifications)	.644*	.277
		Standard Grades/GCSEs (Middle secondary school qualifications)	.514(*)	.272
		None	.942**	.311
	Scottish Index of Multiple Deprivation (ref. 20% least deprived areas in Scotland – group 5)	Group 4	-.155	.336
		Group 3	.575(*)	.319
		Group 2	.204	.326
		Group 1 (20% most deprived areas)	.416	.343
	Competence in understanding Gaelic (ref. None)	The odd word	.057	.237
		More than the odd word (from ‘a few simple	1.398*	.589

2. Exposure to Gaelic		sentences' to 'all conversations')		
	Exposure to Gaelic in the last 12 months (scale of exposure where 1=no exposure and 5 = regular exposure)		-.146	.165
	Exposure to Gaelic in childhood (scale of exposure where 1=no exposure and 6=daily exposure)		.088	.083
3. National and cultural identity	National identity (ref. Scottish not British)	More Scottish than British	-.077	.256
		Equally Scottish and British	-.663*	.276
		More British than Scottish	-.324	.482
		British not Scottish	-.153	.570
		Other	.869	.535
	Importance of Gaelic to one's own cultural heritage (1=not at all important, 5=very important)		.162*	.082
	Importance of Gaelic to cultural heritage of Highlands and Islands (1=not at all important, 5=very important)		.166	.172
	Importance of Gaelic to cultural heritage of Scotland (1=not at all important, 5=very important)		.210	.157
4. Gaelic in the future	Views on encouraging the use of Gaelic in Scotland (ref. 'should not be encouraged at all')	Should be encouraged in areas where it is already spoken	-.748(*)	.416
		Should be encouraged everywhere in Scotland	.115	.406
	Expectations for the number of Gaelic speakers in 50 years' time (ref. 'fewer people than now')	About the same number of people as now	.219	.233
		More people than now	.260	.275
	Hopes for the number of Gaelic speakers in 50 years' time (ref. 'fewer people than now')	About the same number of people as now	1.490	.944
		More people than now	2.338*	.946
	Views on current levels of public spending on Gaelic (ref. 'too much money')	About the right amount of money	.281	.330
		Too little money	.349	.330
	Gaelic-medium pupils do better at school than English-medium pupils (1=strongly disagree, 5=strongly agree)		.618**	.155
	Teaching children in Gaelic is bad because it separates		-.366**	.113

5. Gaelic in education	them from children taught in English (1=strongly disagree, 5=strongly agree)			
	Learning languages such as French is more useful than learning Gaelic (1=strongly disagree, 5=strongly agree)		-.183(*)	.104
	Learning the Gaelic language is pointless in the 21 st Century (1=strongly disagree, 5=strongly agree)		-.104	.123
	Teaching some children in Gaelic is essential to the future use of Gaelic (1=strongly disagree, 5=strongly agree)		.304*	.152
	View on who should have the main responsibility for whether Gaelic is used in Scotland (ref. 'parents or communities')	Schools or government	.548**	.210
		Other	.383	.475
	Residual deviance		687.8	
	Number of residual degrees of freedom		923	

Key for statistical significance levels: ** $p < 0.01$; * $0.01 < p < 0.05$; (*) $0.05 < p < 0.10$. Sample size = 963.

The entries are regression coefficients ('Coeff.') and their standard errors ('s.e.') in a binary logistic regression of the dichotomous variable recording likelihood or not of sending a child to Gaelic-medium education (for details, see Section 3.1). See notes to Tables 3-6 for specification of explanatory variables.

Table 8

Analysis of type II deviance corresponding to Table 7 (by dimension)

	type II deviance	df	p
<i>Dimension</i>			
1. Demographic	34.0**	12	<0.001
2. Exposure to Gaelic	8.92(*)	4	0.06
3. Identity	26.2**	8	0.001
4. Gaelic in the future	48.0**	8	<0.001
5. Gaelic in education	50.6**	7	<0.001

Key for statistical significance levels: ** $p < 0.01$; * $0.01 < p < 0.05$; (*) $0.05 < p < 0.10$. Sample size = 963.

Table 9
Analysis of Type II deviance corresponding to table 7 by variable

Dimension	Variable	type II deviance	df	p
1. Demographic factors	Age	6.84	5	0.23
	Highest Educational Qualification	11.3*	3	0.01
	Scottish Index of Multiple Deprivation	7.34	4	0.12
2. Exposure to Gaelic	Competence in understanding Gaelic	6.29*	2	0.04
	Exposure to Gaelic in the last 12 months	0.784	1	0.38
	Exposure to Gaelic in childhood	1.12	1	0.29
3. National and cultural identity	National identity	14.0*	5	0.02
	Importance of Gaelic to respondent's cultural heritage	3.92*	1	0.05
	Importance of Gaelic to cultural heritage of Highlands and Islands	0.956	1	0.33
	Importance of Gaelic to cultural heritage of Scotland	1.83	1	0.18
4. Gaelic in the future	Views on encouraging the use of Gaelic in Scotland	15.0**	2	0.00
	Expectations for the number of Gaelic speakers in 50 years' time	1.29	2	0.52
	Hopes for the number of Gaelic speakers in 50 years' time	16.9**	2	0.00
	Views on current levels of public spending on Gaelic	1.27	2	0.53
5. Gaelic in education	Gaelic-medium pupils do better at school than English-medium pupils	17.1**	1	0.00
	Teaching children in Gaelic is bad because it separates them from children taught in English	11.0**	1	0.00
	Learning languages such as French is more useful than learning Gaelic	3.07(*)	1	0.08
	Learning the Gaelic language is pointless in the 21 st Century	0.712	1	0.40

	Teaching some children in Gaelic is essential to the future use of Gaelic	4.10*	1	0.04
	View on who should have the main responsibility for whether Gaelic is used in Scotland	6.80*	2	0.03

Key for statistical significance levels: ** $p < 0.01$; * $0.01 < p < 0.05$; (*) $0.05 < p < 0.10$. Sample size = 963.

5. Discussion

Research question 1 asked which variables are statistically associated with the likelihood of choice of Gaelic-medium education when each dimension is modelled individually. Section 4.1 found eighteen variables to be so associated (see Type II deviance p-values, Tables 2-6), and described the key patterns pertaining to these variables. The value of such simple statistics is that it enables comparison with previous research on choice of Gaelic-medium education, whose methods often equate to a univariate approach. That is to say, the previous research typically notes the factors which are associated with the choice of Gaelic-medium education individually, without considering statistically the relative influence of each factor when multiple explanations are involved (MacNeil, 1993, Johnstone et al., 1999, O'Hanlon, McLeod & Paterson, 2010, O'Hanlon, 2015).⁸

The findings of the present research largely concurred with those of the previous research, with 10 of the 11 variables which were comparable with these previous studies replicating their findings. These were the association with the likelihood of choice of Gaelic-medium education of: the two variables within the 'exposure dimension' (competence in Gaelic, exposure in childhood) (MacNeil, 1993, Johnstone et al., 1999, Stockdale et al., 2003, O'Hanlon et al., 2010), the four variables within the 'national and cultural identity' dimension (national identity, and perceptions of the importance of Gaelic to the cultural identity of the respondent, of the Highlands and Islands, and of Scotland) (MacNeil, 1993, Johnstone et al., 1999, O'Hanlon et al., 2010, O'Hanlon, 2015), the two pedagogy variables within the 'Gaelic and education' dimension (outcomes of Gaelic-medium, pedagogical context) (MacNeil, 1993, Johnstone et al., 1999, Stockdale et al., 2003, O'Hanlon et al., 2010), and the two language planning variables within the 'Gaelic and education' dimension, which reflect the role of education in the maintenance of Gaelic (MacNeil, 1993, O'Hanlon et al., 2010). The finding of the present research which did not concord with previous findings was that those with no qualifications are more likely than those with a tertiary-level educational qualification to say that they would choose Gaelic-medium education for their child. This marks a shift from previous literature, which showed the likelihood of choice of Gaelic-medium education to be associated with parents with tertiary or upper secondary school qualifications (Stockdale et al., 2003). We return to a discussion of education level in relation to choice in Research Question 2 (below).

The findings on likelihood of choice and the Scottish Index of Multiple Deprivation – which indicate that those living in areas that are among the three most deprived fifths of SIMD areas in Scotland are more likely to consider Gaelic-medium education than those living in the 20% least deprived areas – also appear to contradict what is known from other sources about enacted choice, where pupils from the most deprived areas are relatively under-represented in Gaelic-medium education. One possible explanation for the different finding may be inferred from results reported by O'Hanlon et al. (2010), who found the schools that

⁸ As noted earlier, the methodological exception here is Stockdale et al. (2003).

had Gaelic-medium streams generally served pupils that were less socially disadvantaged than the average (within these schools, there was no social distinction between pupils in the Gaelic-medium and the English-medium streams). In 2014-15, only 1 of the 59 Gaelic-medium primary providers was located in one of the 20% most highly deprived areas of Scotland, as defined by school post-code, and only 9% of Gaelic-medium primary educated pupils lived in one of these areas (Scottish Government, 2016).⁹ It could be that our finding here indicates a preference to have better access to Gaelic-medium schooling by socially disadvantaged families who do not live close to a school with a Gaelic-medium stream.¹⁰ Such a broadening of demand would be consistent with patterns of growth in Welsh-medium education and Irish-medium education in Anglicised areas (Bellin et al. 1999, Thomas, 2013, Kavanagh & Hickey 2013) and would also be consistent with research on the stable operation of parental choice generally after the initial period in the 1980s when choice was more often exercised by socially advantaged parents than by others: in due course, parents from across the social spectrum were able to use placing requests to gain access to their choice of school (Croxford and Paterson, 2006, Gorard and Fitz, 1998, Gorard, Fitz and Taylor, 2001). Future research would be required to investigate empirically the factors mediating between intended and enacted choice of Gaelic-medium education, in order to identify the factors that enable or restrict access to Gaelic-medium education in Scotland. Such research should consider both community-level factors (such as distance to GME provision, and availability of information on GME), and respondent-level characteristics (such as socio-economic status).

The remaining six variables found to be statistically significantly associated with a likelihood of choice of Gaelic-medium education were variables without precedence in the previous literature. These were: the four variables within the ‘Gaelic in the future’ dimension and the two on the perceived value of learning Gaelic within the ‘Gaelic in education’ dimension (Sections 3.1 & 4.1, dimensions 4 & 5). These variables, which indexed respondents’ views on the future of Gaelic, on promoting and supporting Gaelic, and on the usefulness and relevance of learning Gaelic, were included in order that we would have a suite of explanatory variables which would reflect Baker’s tripartite framework – of language planning, pedagogy and politics – when modelling the factors associated with the likelihood of choice within one statistical model.

Research question 2 investigated which of the five dimensions had the strongest independent statistical influence on the likelihood of choice of Gaelic-medium education when all five dimensions were modelled together, and which individual variables retained statistical significance within this final model. The use of logistic regression to model the influence of the five dimensions and their 20 constitutive variables on likelihood of choice enabled us to show a more nuanced and complex pattern of results than that found in previous, predominantly univariate, research on the choice of Gaelic-medium education in Scotland. The methodological approach enabled us to evaluate the relative contribution of each dimension to likelihood of choice of Gaelic-medium education, with a key finding being the relative unimportance of the ‘exposure to Gaelic’ dimension, which indexes both competence in Gaelic and exposure to the language (Table 8). The much higher contribution of the ‘national and cultural identity’ dimension reflects the importance of the symbolic social role of Gaelic in the likelihood of choice of Gaelic-medium education amongst this representative sample of the Scottish population. Such a finding reflects both the low levels of competence in Gaelic amongst the general population in Scotland (with only 1.7% of the

⁹ In the school year 2014-15 the SIMD distribution of Gaelic-medium primary pupils by home postcode was: 9% (highest deprivation quintile), 24%, 36%, 19%, 11% (lowest deprivation quintile) [n = 2,901]. The distribution in English-medium education was: 23% (highest deprivation quintile), 19%, 19%, 20%, 18% [n = 373,794] (Scottish Government, 2016).

¹⁰ Appendix 1 shows that household income and social class were also associated with the dependent variable: with greater social disadvantage associated with greater likelihood of choice of Gaelic-medium education.

population reporting any skills in Gaelic in the 2011 census), and is an instance of a wider phenomenon in which people's views about the symbolic role of Gaelic are typically more strongly associated with views of public policy for Gaelic than are views about the communicative role of the language (National Records of Scotland, 2015, Paterson & O'Hanlon, 2015). The methodological approach also enabled us to illustrate the value of simultaneously considering a range of dimensions when investigating the choice of medium of education, as only 11 of the 18 variables found to be statistically significant when each dimension was modelled individually retained significance in the final model which modelled all five dimensions together. The significant variables within the final model were presented by dimension in Section 4.2 to enable comparison with the results of Research Question 1 and with the previous literature.

However, here, the statistically significant results from the final model (Table 7) will be discussed in relation to Baker's (2000) tripartite framework of language planning, pedagogy and politics, as a key aim of the paper is to investigate the extent to which Baker's three contexts for growth of Welsh-medium education underpin potential growth of Gaelic-medium education in Scotland (Section 2.2). Table 9 presents the deviance values of each individual variable which can be associated with Baker's three contexts for growth: planning (2 planning variables within 'Gaelic in education' dimension plus 4 variables within 'future of Gaelic' dimension), pedagogy (2 pedagogy variables within 'Gaelic in education' dimension) and public politics (2 politics variables within 'Gaelic in education' dimension plus 4 within the 'national and cultural identity' dimension). In analysis not shown in the table, when the combined deviance values of each context is calculated within the full model (as shown in Table 7), the Type II deviance associated with each context was: planning = 76.1 (11 degrees of freedom, $p < 0.001$), pedagogy = 28.0 (2 degrees of freedom, $p < 0.001$), and politics = 36.50 (10 degrees of freedom, $p < 0.001$), showing each context to have a significant influence on the likelihood of Gaelic-medium education in the Scottish context.

With regard to bilingual education as language planning, evidence from the two significant planning variables included in the 'Gaelic in education' dimension was supplemented by evidence from the two significant variables within the 'views about the future of Gaelic' dimension. In summary, respondents were more likely to choose Gaelic-medium education if they hoped that the number of Gaelic speakers would increase over the next 50 years, if they felt that Gaelic-medium education was essential to the future of Gaelic in Scotland, and if they felt that institutions (the school or government) were the main stakeholders responsible for the future use of Gaelic in Scotland. The last conclusion here is based on evidence from two interacting variables: the finding that those who explicitly identify institutions (rather than parents and communities) as having the main responsibility for whether Gaelic is used in Scotland are more likely to choose Gaelic-medium education for their child, and the finding that those who believe that Gaelic should be promoted only in areas where it is already spoken (and who, within this survey, typically perceive such work to be the responsibility of parents and local communities) are less likely to choose Gaelic-medium education. Such evidence relates to the academic debate about the role of education in language revitalisation (for summary, see Ó Laoire & Harris, 2006). In relation to bilingual education as pedagogy, the two pedagogy variables from the 'Gaelic in education' dimension retained strong levels of statistical significance and predictive power in the final model. These findings concord with the priority accorded to immersion education as an academically successful form of education within a culturally inclusive school context in Scotland (MacNeill, 1993, Johnstone et al., 1999, O'Hanlon, McLeod & Paterson, 2010,

Stephen et al., 2010, O'Hanlon, 2015). Finally, with regard to bilingual education as politics, the evidence from the statistically significant variable from the 'Gaelic in education' dimension is supplemented by two significant variables within the 'national and cultural identity' dimension. In the final model, likelihood of choice of Gaelic-medium education was associated with holding a strongly Scottish national identity, with the respondent perceiving the language to be important to their own cultural heritage, and with perceiving Gaelic to be at least as useful as learning French. The association between a personal cultural link to Gaelic and the choice of Gaelic-medium education is well-established (MacNeill, 1993, Johnstone et al., 1999, Stockdale, MacGregor & Munro, 2003, O'Hanlon, McLeod & Paterson, 2010, Stephen et al., 2010, O'Hanlon, 2015), whilst a link between national identity and choice of Gaelic-medium education has emerged in some, but not all, previous research (Stockdale et al., 2003, O'Hanlon et al., 2010).

In addition to the nine significant variables that can be classified according to Baker's framework, two other variables retained significance in the final model. Respondents were more likely to express a likelihood to choose Gaelic-medium education if they had some Gaelic language skills (here indexed as the ability to understand at least a few sentences of Gaelic) and if they did not hold a degree level educational qualification. The finding of competence in Gaelic being linked to likelihood of choice of Gaelic-medium education is well established, with some previous literature acknowledging that such competence may be passive understanding resulting from a family heritage of Gaelic speaking in a previous generation (MacNeill, 1993, O'Hanlon, McLeod & Paterson, 2010, Stephen et al., 2010, O'Hanlon, 2015). However, the finding that likelihood of choice is associated with those not educated to degree level diverges from that reported in previous research which found there to be a statistically significant association between education to university or upper secondary level and likelihood of choice of Gaelic-medium education (Stockdale et al., 2003). The difference in the findings may relate to differences in the research studies relating to the geography of the sample – the Stockdale et al. (2003) study being conducted within three Gaelic-speaking communities, and the present study being a nationally representative survey – or it may reflect a shift over time in the demographic characteristics of parents interested in Gaelic-medium education in the ten-years between the surveys (2002 and 2012 respectively), a period which saw a 96% growth in the number of Gaelic-medium primary pupils in lowland areas, compared with a 5% increase in the Highlands and Islands (here defined as the three council areas of Comhairle nan Eilean Siar, Highland Council and Argyll & Bute Council). In 2002-03, 71% of the 1928 pupils in Gaelic-medium primary education were educated in the Highlands and Islands, compared with 58% of the 2500 pupils so educated in 2012-13 (Robertson, 2002, Galloway, 2012). Limitations in the sample size of the present survey (discussed in Section 6 below) precludes the analysis of the present national data by region, and limitations of Government data (which does not collect information on parental education level in relation to pupil medium of instruction) prevents a comparison of the socio-economic profile of Gaelic-medium pupil cohort over time. Similar limitations in the availability of data to evidence change in the profile of parents of Celtic-medium pupils over time have been noted in relation to parents of pupils in all-Irish schools in Ireland between 1985 and 2002 (Harris et al., 2006, p. 158), and in relation to parents of Welsh-medium pupils in Wales (Thomas, 2013, p. 51). A hypothesis of both authors is that the increase in provision of Irish-medium and Welsh-medium provision in Anglicised areas has led to the broadening of parental demographic characteristics (such as education level and socio-economic status)

over time, and the results of the present study indicate that this warrants further exploration in the Scottish context.

6. Implications and limitations

The paper has provided statistical evidence relating to the factors associated with a likelihood of choice of Gaelic-medium education amongst a representative sample of the adult population in Scotland. In so doing, it has shown the potential demand for Gaelic-medium education in Scotland (at 28%) to be similar to the level of potential demand found in a methodologically similar survey of 2000 adults in the Republic of Ireland and Northern Ireland conducted in 2000, in which 23% of those surveyed in the Republic, and 21% of Catholics surveyed in the North said that they would send their children to an Irish-medium primary school if it was located near their homes (Ó Riagáin, 2007). The findings can also be considered alongside the actual choice of Welsh-medium primary education in Wales (24% in 2014-15), a context in which Celtic-medium education is available in every local authority (Welsh Government, 2015). The paper has shown Baker's tripartite explanatory framework for the growth of bilingual education in Wales – bilingual education as language planning, as pedagogy and as politics – also to be valuable in explaining potential future growth of Gaelic-medium education. The specific findings of the research may help to inform future language policy and planning in Scotland and may also be useful in cross-national comparisons, particularly with studies which adopt a similar theoretical and methodological approach to investigating the potential demand for bilingual education in lesser-used languages. For example, the findings of the present research could be compared with those of the 2013 *Irish Language Survey*, which contained a similar question about likelihood of choice of Irish-medium primary education for a child if it was locally available (Darmody & Daly, 2015).

However, the present study does have limitations. The first is that the sample size is not large enough to enable the comparative analysis of variables associated with a likelihood of choice of Gaelic-medium education at sub-national levels, for example, a comparison between the most densely Gaelic-speaking areas of the Highlands & Islands and the Lowlands, or between individual education authorities. The second pertains to the use of large-scale quantitative survey data. Although such data is useful for identifying demographic and attitudinal characteristics associated with the likelihood of choice of Gaelic-medium education, a full understanding of the factors and contexts which would facilitate, or which would restrict, the 'enactment' of such 'behavioural intentions' (Fishbein & Ajzen, 1975) would require further in-depth qualitative work. A large-scale qualitative study – which enabled such sub-national comparisons and which investigated parental reasons both for choosing, and for not choosing, Gaelic-medium education – is thus recommended. Following Hickey (1999) and Harris et al. (2006), we would recommend that all future research on the choice of bilingual education include key variables on parental education, socio-economic status and language competence (at parental, family and community levels), and additionally recommend that researchers consider replicating key questions, methodological features or analytic categories from previous research on choice in the UK and internationally. Such measures would better facilitate new strands of work, for example, the analysis of choice of immersion education by social class, which Makropoulos (2007) argues to warrant international attention, and would better enable future longitudinal and cross-national comparisons of reasons for parental choice of bilingual education.

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Appendix 1: Construction of five dimensions¹¹

Dimension 1: Demographic characteristics

11 additional variables were considered for inclusion in demographic characteristics. Six of these: sex, occupational sector (private, public, self-employed), household type (single person household, 1 adult with children, 2 adults, 2 adults with children etc), whether the respondent was married, whether the respondent had children, and whether the respondent had a disability, were not statistically significantly associated with the likelihood of choice of Gaelic-medium education. Five variables were statistically significantly associated with the dependent variable, but measured similar demographics to those included in the model above. These were: household income, employment status (working, student, retired, unemployed), tenure of household, geographical area type (large urban to remote rural), and social class (using the National Statistics Socio-Economic Classification).

Dimension 2: Exposure to Gaelic

Two additional variables were considered for inclusion in the ‘exposure to Gaelic’ group. The first, which reported on how often, if at all, respondents had visited the most strongly Gaelic speaking areas of Scotland (covered by the council areas Comhairle nan Eilean Siar, Highland and Argyll & Bute in the North-West of the country) within the previous 12 months was not statistically significantly associated with likelihood to choose Gaelic-medium education for a child. The second – respondents’ speaking competencies in Gaelic – did return a statistically significant relationship with the dependent variable, but the ‘speaking’ variable was found to be highly correlated with the ‘understanding’ variable ($r = 0.784$, $p = 0.000$). ‘Understanding’ was chosen as the indicator variable for respondent Gaelic-language competence, as it was more strongly associated with the dependent variable.

Dimension 3: National and cultural identity

Four further variables were considered for inclusion within the National and Cultural identity group. Two pertained to the place of Gaelic in Scottish cultural identity: namely the extent to which respondents’ believe that speaking Gaelic is important to being Scottish, and the amount of similarity respondents’ believe Gaelic-speakers to have with other people in Scotland. Two pertained to politics: namely, respondents’ party political affiliations, and respondents’ preferences regarding Scotland’s constitutional future (Scotland in UK without own parliament, Scotland in UK with own parliament, Scotland not in UK). Although all of these variables were individually significantly related to the dependent variable, they did not hold additional statistically significant explanatory power when they were entered into the model along with the four explanatory variables included within Dimension 3 (detailed in Section 3.1).

¹¹ In Appendix 1, statistical significance is assessed at the 10% level (please see Section 3.1 for more details).